

ABSTRACT OF THE DISCLOSURE

An apparatus and method for current balance in a multi-phase DC-to-DC converter with a converter output voltage and a plurality of channel currents employs for each channel a multi-input pulse width modulator or an ordinary pulse width modulator in conjunction with a multi-input comparator to produce a respective PWM signal to regulate the corresponding channel current. In addition to the comparison of the converter output voltage with a reference signal to produce an error signal, the apparatus and method compares the error signal with a ramp signal and the corresponding channel current with each of the other channel currents with the multi-input pulse width modulator. Alternatively, a ramp signal is compared by the ordinary pulse width modulator with a signal derived from the multi-input comparator which subtracts the corresponding channel current from each other channel current and sums the error signal.